

**REMARKS**

**INTRODUCTION:**

In accordance with the foregoing, claim 4 has been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 4 and 5 are pending and under consideration. Reconsideration is respectfully requested.

**EXAMINER'S RESPONSE TO ARGUMENTS:**

In the Office Action, at pages 2-4, numbered paragraph 1, the Examiner presented arguments in response to Applicants' Amendment/Response filed December 22, 2006.

In view of the following arguments and amendment, it is respectfully submitted that the Examiner's concerns have been overcome.

**REJECTION UNDER 35 U.S.C. §112:**

In the Office Action, at page 4, numbered paragraph 2, claims 4 and 5 were rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth therein. This rejection is traversed and reconsideration is requested.

The terminology "the peak" in line 11 of claim 4 has been amended to recite "a peak" to correct antecedent basis. Hence, amended claim 4 is now submitted to be definite, and to be in allowable form under 35 U.S.C. §112, second paragraph. Since claim 5 depends from amended claim 4, claim 5 is also submitted to be definite, and to be in allowable form under 35 U.S.C. §112, second paragraph.

**REJECTION UNDER 35 U.S.C. §103:**

In the Office Action, at page 5-7, numbered paragraph 6, claims 4 and 5 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cole et al. (USPN 5,378,895; hereafter, Cole), and further in view of Shao et al. (USPN 5,999,588; hereafter, Shao) and admissions by Applicants. The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

It is respectfully submitted that it appears that, although the Examiner seems to partially understand Applicants' arguments, she may not understand a main characteristic feature of the present invention, namely, a method of quantifying a single nuclide by measuring a plurality of gamma-rays emitted from the single nuclide. Hence, the following further explanation is provided.

Indeed, Cola describes a measurement method for concurrently counting gamma-ray pulses by using a plurality of gamma-ray detectors, but as a method for analysis in which nuclides are assayed based on the data obtained by the measurement method, Cola discloses a technique which is different from the two-dimensional matrix technique. In other words, Cole provides a technique in which nuclides caused by fission are assayed by simultaneous counting of gamma-rays and neutrons emitted from two different nuclides caused by fission. For example, Fig. 4A of Cole indicates that fission nuclide  $^{252}\text{Cf}$  can be specified by observation of several gamma-rays of molybdenum isotopes ( $^{102}\text{Mo}$ ,  $^{103}\text{Mo}$ , ...,  $^{107}\text{Mo}$ , etc.) which were selectively discriminated by the gamma-ray of  $^{144}\text{Ba}$  ( $^{114}(\text{?})\text{Ba}$ ). Fig. 4B indicates that fission nuclide  $^{242}\text{Pu}$  can be specified by observation of gamma-rays of molybdenum isotopes ( $^{102}\text{Mo}$ ,  $^{103}\text{Mo}$ , ...,  $^{105}\text{Mo}$ , etc.) which were selectively discriminated by the gamma-ray of  $^{144}\text{Ba}$  ( $^{114}(\text{?})\text{Ba}$ ). Therefore, the invention of Cole is characterized by the steps of simultaneous counting of a plurality of gamma-rays and neutrons of a fissionable material to find combinations of various nuclides caused by fission and identification of the original fission nuclide.

In contrast, the present invention is directed not to a fission nuclide, but rather to a radionuclide. The present invention differs at least from the invention of Cole in that one nuclide (for example,  $^{152}\text{Eu}$  nuclide) is assayed by measuring of only a plurality of gamma-rays which belong to the one nuclide (for example, the  $^{152}\text{Eu}$  nuclide). In fact, with regard to Fig. 4A of Cole, the gamma-ray of  $^{144}\text{Ba}$  ( $^{114}(\text{?})\text{Ba}$ ) was not observed. Also, with regard to Fig. 4B of Cole, the gamma-ray of  $^{134}\text{Te}$  was not observed. Hence, it is respectfully submitted that it is evident that the assay of  $^{144}\text{Ba}$  ( $^{114}(\text{?})\text{Ba}$ ) per se or  $^{134}\text{Te}$  per se cannot be carried out by the method of Cole et al.

It appears that the Examiner seems to misunderstand the disclosure and teaching of Shao. The invention of Shao is similar to the present invention only in that a gamma-ray detector is used, and that data derived from the detector are analyzed. However, it is respectfully submitted that Shao cannot be relied upon to reject claims 4 and 5 of the present application based on these two points only. It appears that the Examiner gives too broad an interpretation to the teachings of Shao. Shao provides an invention related to a highly advanced SPECT or PET imaging which provides a two-dimensional position distribution of nuclides by measuring of a gamma-ray or a positron gamma-ray. However, Shao does not refer to, or suggest, a two-dimensional analysis of energy of gamma-rays.

In view of the above descriptions of Shao's teachings and Cole's teachings, it is respectfully submitted that Applicants' admissions that the two-dimensional matrix may be replaced with a suitable equivalent cannot be combined with Shao's teachings and Cole's

teachings to obtain the present invention.

For the foregoing reasons, it is respectfully submitted that the skilled artisan could not have arrived at the present invention by merely combining Cole with Shao and admissions by Applicants.

Hence, it is respectfully submitted that amended independent claim 4 of the present invention is patentable under 35 U.S.C. §103(a) over Cole et al. (USPN 5,378,895), and further in view of Shao et al. (USPN 5,999,588), including Applicants' admissions, alone or in combination. Since claim 5 depends from amended independent claim 4, claim 5 is patentable under 35 U.S.C. §103(a) over Cole et al. (USPN 5,378,895), and further in view of Shao et al. (USPN 5,999,588), ), including Applicants' admissions, alone or in combination, for at least the reasons amended independent claim 4 is patentable under 35 U.S.C. §103(a) over same.

#### CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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